

Class 3 Homework

1. Given a number sequence 3, 7, 6, 6, 2, 3, 7, 6, 6, 2, ..., what is the sum of the first 101 numbers?
2. Harry goes outside for a run every 3 days and goes to the gym every 8 days. If he went for a run and went to the gym today, in how many days will be the next day he runs and goes to the gym on the same day?

Answers:

1. The numbers are repeating after every 5 numbers – 3, 7, 6, 6, 2
 $101 \div 5 = 20 \text{ R}1$
 $3 + 7 + 6 + 6 + 2 = 24$ → The sum of one cycle is 24
 $20 \times 24 = 480$ → The sum of 20 cycles is 480
Sum of the first 100 numbers = 480
The 101st number is the first number of the sequence, 3.

 \therefore Sum of first 101 numbers = $480 + 3 = 483$
2. We need to find the Lowest Common Multiple of 3 and 8, which will be the next time he runs and goes to the gym on the same day.
Prime factorize 3 and 8:
 $3 = 3$
 $8 = 2^3$
 $\text{lcm}(3, 8) = 2^3 \times 3$
 $= 24$
 \therefore He will run and go to the gym in 24 days.